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## 2020 Tennessee Drug Overdose Deaths

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# **2020 Tennessee Drug Overdose Deaths**

**Tennessee Department of Health  
Office of Informatics and Analytics**

September 1, 2021

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## Introduction and Purpose

The purpose of this brief report is to describe drug overdose deaths in Tennessee in 2020, with an emphasis on providing useful data to stakeholders of Tennessee Department of Health (TDH) at the regional and county levels. Results presented here derive from vital statistics death certificate data as well as data from Tennessee's prescription drug monitoring program, the Controlled Substance Monitoring Database (CSMD).

### Definitions

- Drug overdose (fatal and nonfatal)
  - A drug overdose is classified medically as a “drug poisoning.” An overdose may be fatal or nonfatal, and in Tennessee in 2019, approximately 12 nonfatal overdose discharges (both outpatient visits and inpatient stays combined) occurred for every identified fatal overdose.<sup>1</sup>
- Underlying cause of death
  - To be classified as a fatal overdose, the underlying cause of death on a death certificate must be designated as a drug poisoning. Thus, while drugs play a part in causing some deaths, only those for which the drug poisoning is designated as the underlying cause of death are designated as overdoses by the Centers for Disease Control and Prevention (CDC). TDH provides death certificate data to CDC and they provide the final classifications and coding for the causes of death. For this reason, it is possible that local medical examiners may consider rates of overdose death to be different than the final, official statistical data.<sup>2</sup>
- Contributing cause of death
  - In addition to the underlying cause of death, a death certificate may include multiple contributing causes of death. Once a death is designated as an overdose, the contributing causes provide data on the types of drugs that were present in the body of the decedent, as identified through toxicology report. Of note, contributing causes of death are coded using ICD10 codes, so drugs for which a code does not exist would not be identified in this way.
- Literal text on death certificates
  - In addition to the coded data available in the underlying and contributing causes of death columns of the data file, there are text fields available that may provide additional information. For example, no ICD10 code currently exists to specifically identify fentanyl; the analytic team uses a text search to identify cases involving fentanyl within the subset of individuals with an underlying cause of death of drug overdose.
- Controlled Substance Monitoring Database
  - The Controlled Substance Monitoring Database (CSMD) of Tennessee includes data on controlled substances that are dispensed. For our analyses, we include only those data on individuals who are residents of the state.

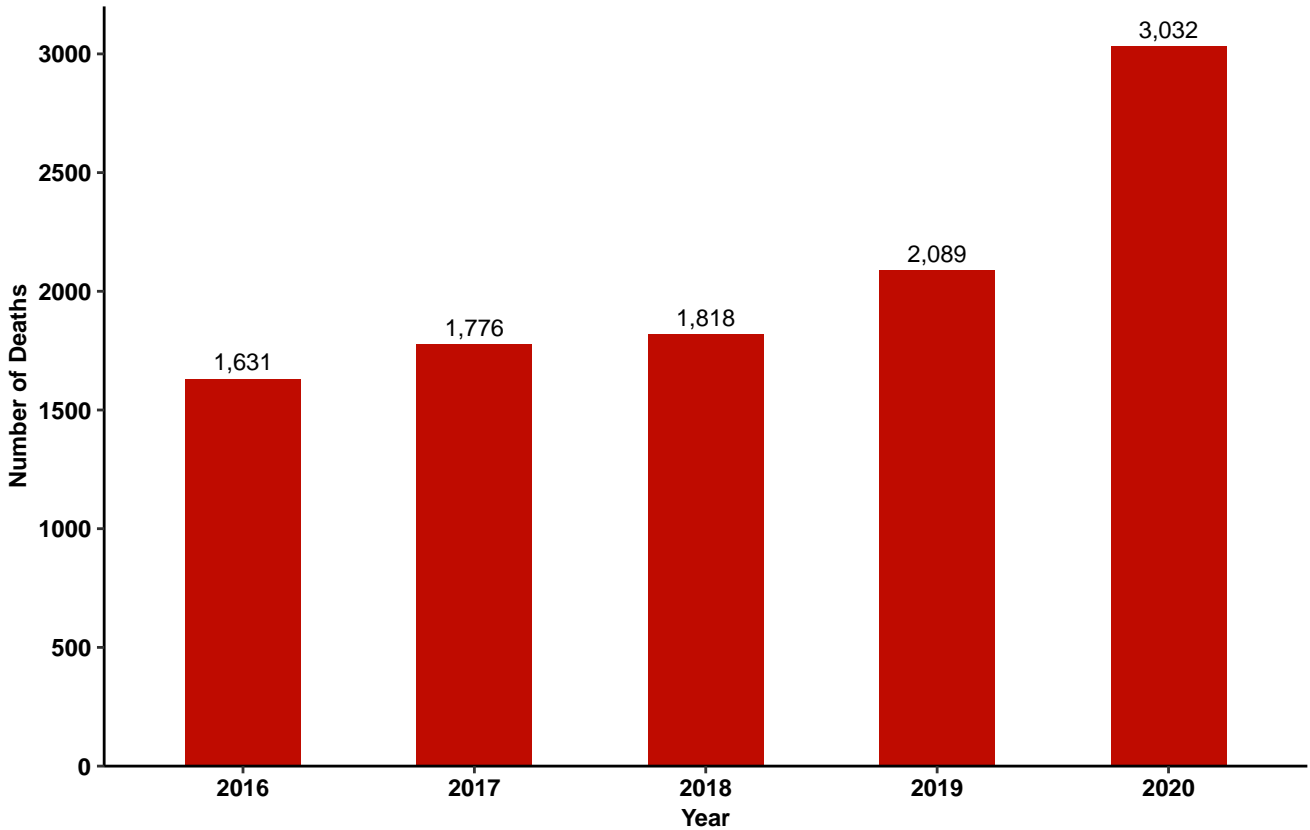
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<sup>1</sup>Tennessee's Annual Overdose Report, 2020

<sup>2</sup>Mortality report, 2019

## State-level overview 2016 - 2020

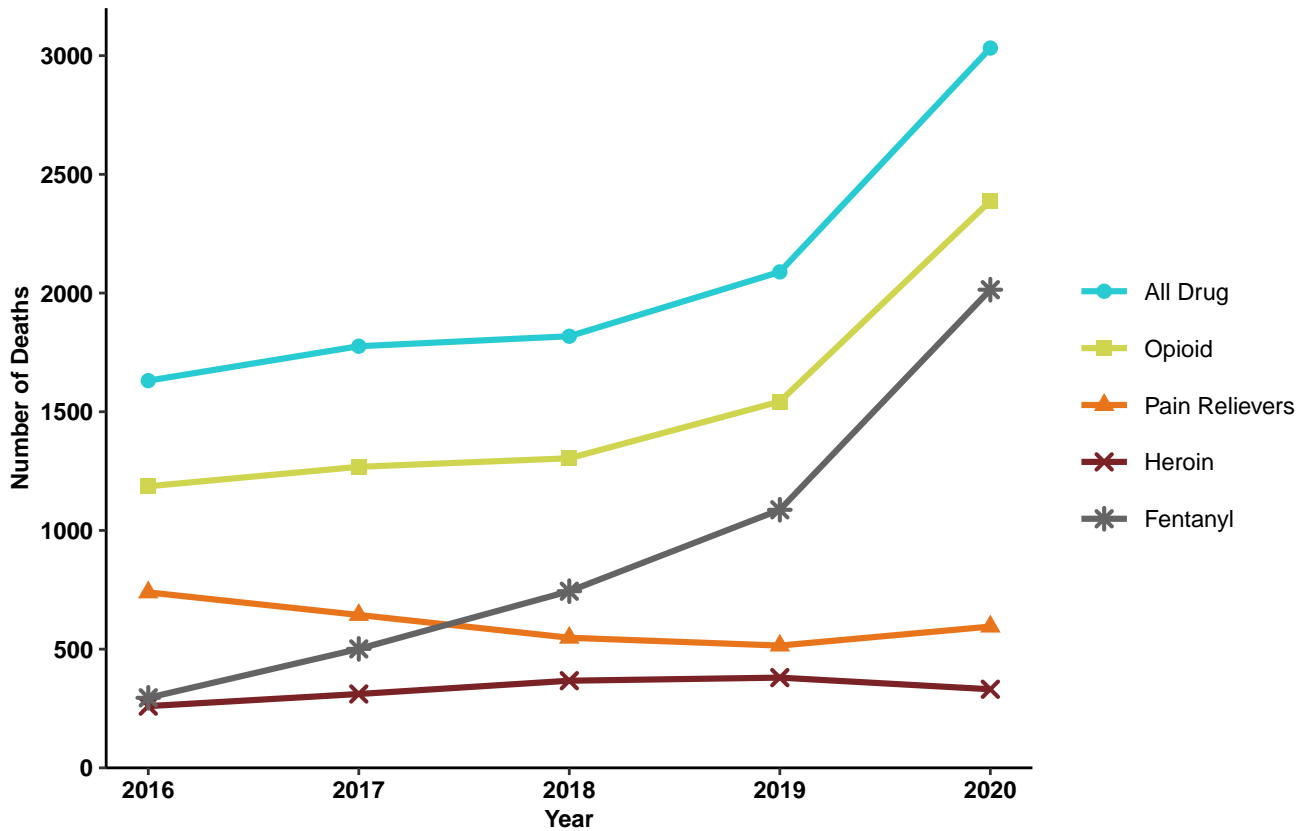
Drug Overdose Deaths in TN, 2016-2020



Analysis by the Office of Informatics and Analytics, TDH (last updated August 26, 2021). Limited to TN residents.  
Data Source: TN Death Statistical File.

In 2020, 3,032 Tennesseans died of a drug overdose, representing a 45% increase from 2019. Over the past five years, drug overdose deaths in Tennessee have consistently increased, but the change from 2019 to 2020 is the largest year-to-year increase observed over this period.

## Number of Overdose Deaths by Drug Type in TN, 2016-2020



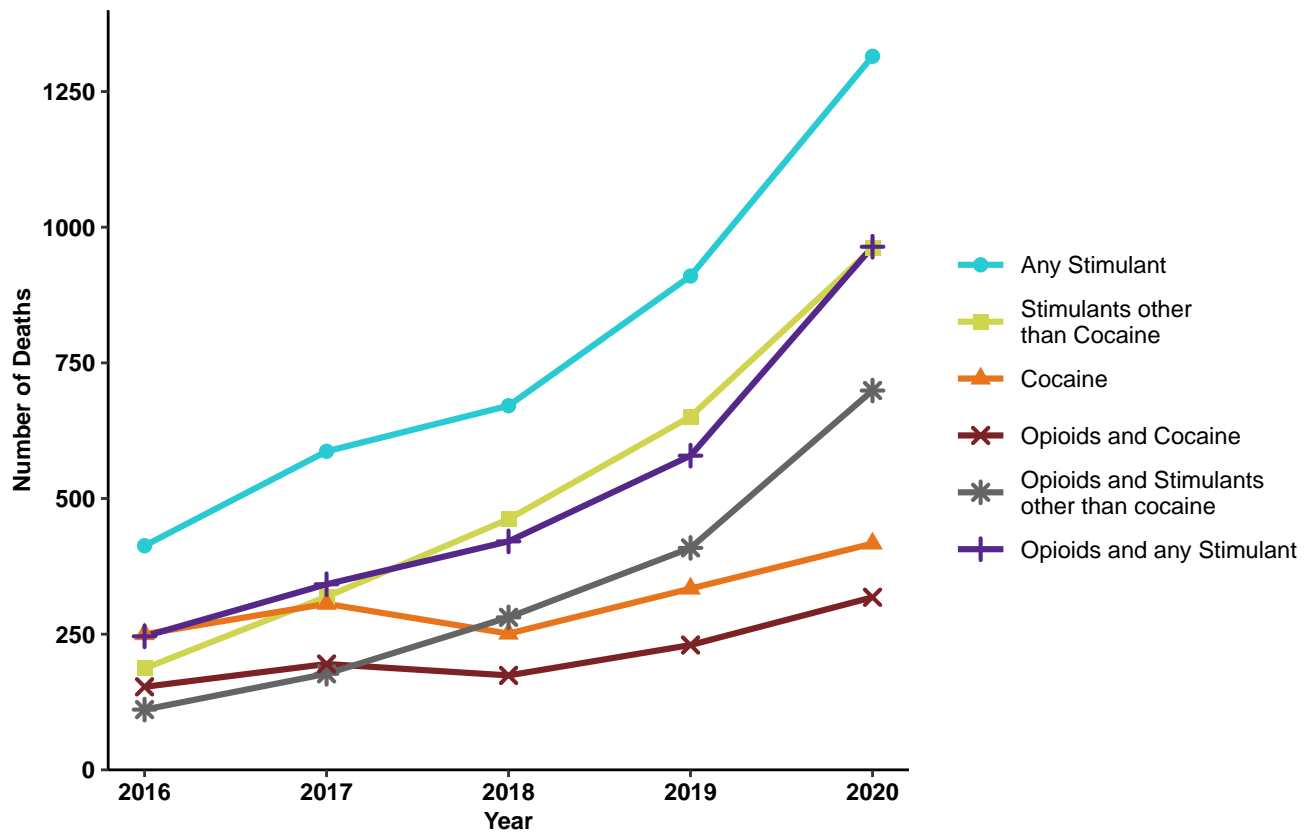
Analysis by the Office of Informatics and Analytics, TDH (last updated August 26, 2021). Limited to TN residents.  
Data Source: TN Death Statistical File.

Number of Overdose Deaths in TN by Drug Type					
Type	2016	2017	2018	2019	2020
All Drug	1,631	1,776	1,818	2,089	3,032
Opioid	1,186	1,268	1,304	1,543	2,388
Pain Relievers	739	644	548	515	595
Heroin	260	311	367	380	331
Fentanyl	295	501	744	1,087	2,014

Opioids have consistently played a role in drug overdose deaths in Tennessee and were involved in 79% of overdose deaths in 2020. The increase in opioid overdose deaths is primarily driven by deaths involving illicit fentanyl. Deaths involving opioids identified as pain relievers (i.e., those typically obtained through a prescription) have increased slightly after several years of decline, while deaths involving heroin have decreased slightly after several years of increase.

Of note, these are not mutually exclusive drug categories, and an overdose may have involved multiple types of opioids or non-opioid drugs.

## Number of Stimulant Overdose Deaths in TN, 2016-2020

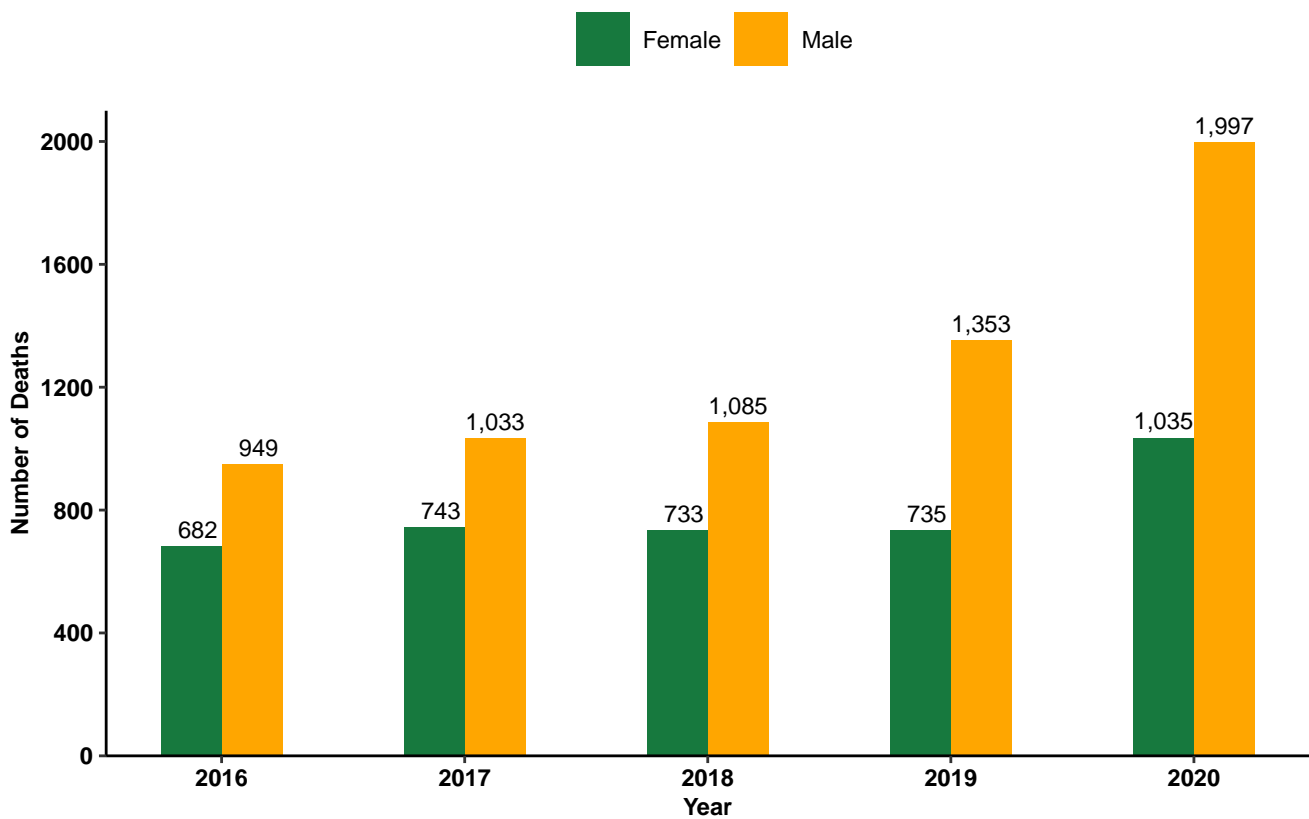


Analysis by the Office of Informatics and Analytics, TDH (last updated August 26, 2021). Limited to TN residents.  
Data Source: TN Death Statistical File.

Number of Stimulant Overdose Deaths in TN					
Type	2016	2017	2018	2019	2020
Any Stimulant	413	587	671	910	1,315
Stimulants other than Cocaine	187	319	462	651	961
Cocaine	250	306	251	334	417
Opioids and Cocaine	153	195	174	230	318
Opioids and Stimulants other than cocaine	111	177	281	409	699
Opioids and any Stimulant	246	342	421	579	964

Deaths involving any stimulants have consistently increased over the past five years: a 218% increase from 2016 to 2020. Deaths involving stimulants other than cocaine, a category that includes primarily deaths involving methamphetamine, have increased substantially over this period. Deaths involving both opioids and stimulants have also increased over the past five years, and in 2020, 73% of stimulant involved deaths also involved an opioid.

## Number of All Drug Overdose Deaths by Sex in TN, 2016-2020

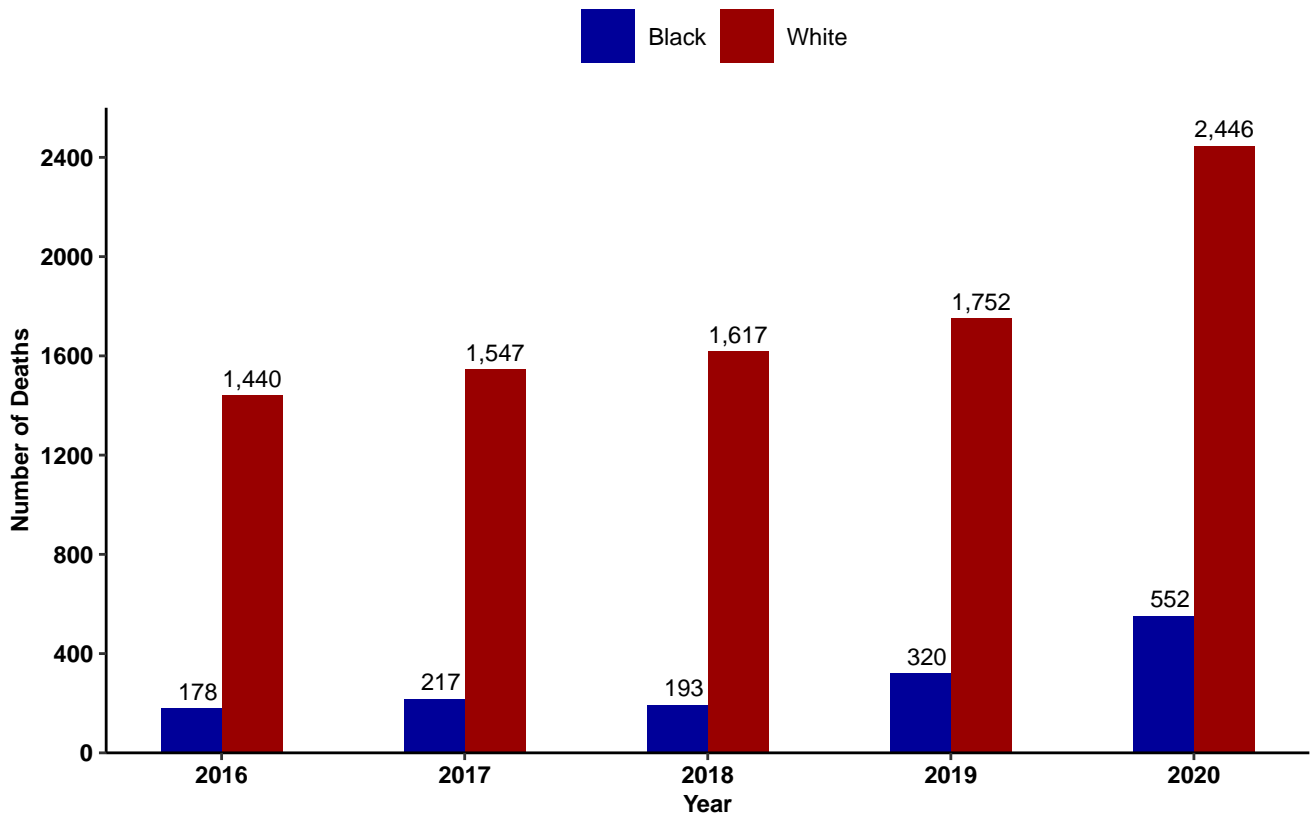


Analysis by the Office of Informatics and Analytics, TDH (last updated August 26, 2021). Limited to TN residents.  
Data Source: TN Death Statistical File.

Males have made up an increasing proportion of overdose deaths over the past five years, and they now account for approximately two-thirds of all overdose deaths. The number of males who died of a drug overdose increased 48% between 2019 and 2020. Even though the number of females who died of a drug overdose remained relatively stable from 2017-2019, there was a 41% increase between 2019 and 2020.



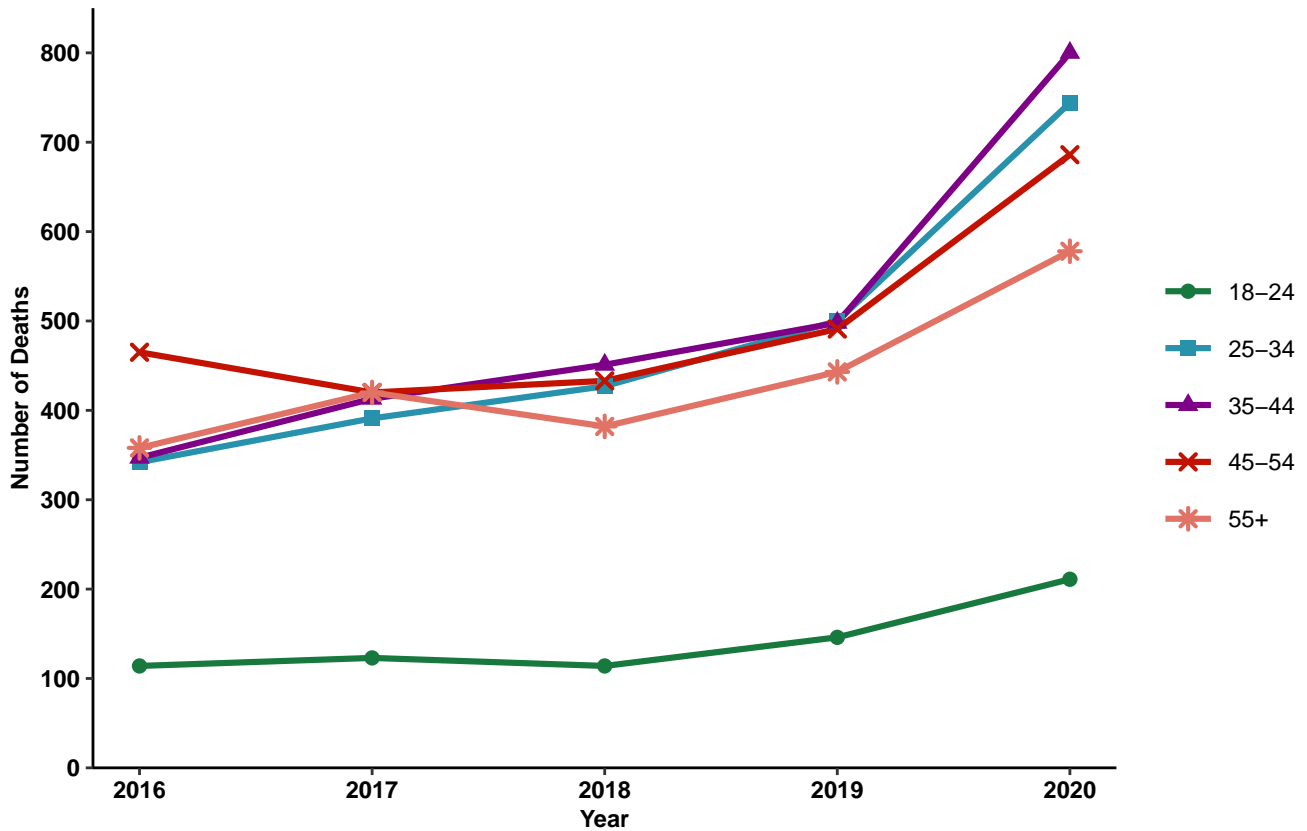
## Number of All Drug Overdose Deaths by Race in TN, 2016-2020



Analysis by the Office of Informatics and Analytics, TDH (last updated August 26, 2021). Limited to TN residents.  
Data Source: TN Death Statistical File.

Tennesseans who died of a drug overdose were more likely to be White, but the proportion of White Tennesseans who died of drug overdose has decreased from 88% in 2016 to 81% in 2020. Between 2019 and 2020, drug overdose deaths involving Black Tennesseans have increased 73%.

### Number of All Drug Overdose Deaths by Age in TN, 2016-2020



Analysis by the Office of Informatics and Analytics, TDH (last updated August 26, 2021). Limited to TN residents.  
Data Source: TN Death Statistical File.

Number of All Drug Overdose Deaths in TN by Age					
AgeCategory	2016	2017	2018	2019	2020
18 - 24	114	123	114	146	211
25 - 34	342	391	427	500	744
35 - 44	347	413	451	498	800
45 - 54	465	420	433	491	686
55+	358	420	382	443	578

From 2016 to 2020, overdose deaths have increased among all age groups over 18. Between 2019 and 2020, persons aged 35-44 years had the highest percent increase (61%) of drug overdose deaths among these age groups.

## Prescription History among Overdose Deaths

### Prescription History in the 365 Days Before Overdose Deaths in TN, 2016-2020

Percent who filled any prescription in the TN CSMD within 365 days of death by type of overdose death among all individuals who died, 2016-2020 (n_total=10,346, n_linked=8,979)					
Overdose Death	2016	2017	2018	2019	2020
All Drug	69	66	60	55	49
Opioid	70	68	60	56	49
Pain Relievers	76	77	71	66	63
Heroin	58	59	52	51	48
Fentanyl	63	56	52	51	45
Benzodiazepine	75	78	78	68	67
Opioid and Benzodiazepine	75	77	76	68	66

The Controlled Substance Monitoring Database (CSMD) provides insight on the degree to which Tennesseans who die of drug overdoses have received prescriptions for controlled substances. The table on this page shows the percentage of overdose decedents who filled any controlled substance prescription in the 365 day period before their death. Overdose deaths are further divided into categories by the drug involved in the death. For example, in 2020, 49% of individuals who died of an opioid overdose had filled any prescription (reported to the CSMD) in the past year, compared to 31% doing so in the 60 days before death (see next page). *Categories of drug deaths are not mutually exclusive.*

## Prescription History in the 60 Days Before Overdose Deaths in TN, 2016-2020

**Percent who filled any prescription in the TN CSMD within 60 days of death by type of overdose death among all individuals who died, 2016-2020 (n\_total=10,346, n\_linked=8,979)**

<b>Overdose Death</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
All Drug	50	44	40	36	32
Opioid	51	46	41	36	31
Pain Relievers	61	60	55	49	49
Heroin	35	30	32	30	29
Fentanyl	38	32	29	29	26
Benzodiazepine	59	60	64	55	52
Opioid and Benzodiazepine	60	58	62	55	51

The table on this page shows the percentage of overdose decedents who filled any controlled substance prescription in the 60 day period before their death. Overdose deaths are further divided into categories by the drug involved in the death. Over the five year period from 2016-2020, there has been a continual decrease in the percentage of decedents who filled a prescription in the CSMD in the 60 days before death for most categories. Whereas in 2016, 50% of overdose decedents had a filled prescription in the 60 days before death, by 2020 that number dropped to just 32%. These trends reflect the decrease of deaths involving prescription opioids and increase in deaths involving illicit opioids, the current driving force of the epidemic of overdose deaths.

## Opioid and Benzodiazepine Prescription History in the 60 Days Before Overdose Deaths in TN, 2016-2020

Percent who filled a prescription for an opioid / benzodiazepine in the TN CSMD within 60 days of death by type of overdose death among all individuals who died, 2016-2020 (n\_total=10,346, n\_linked=8,979)

Overdose Death	Opioid prescription filled					Benzodiazepine prescription filled				
	2016	2017	2018	2019	2020	2016	2017	2018	2019	2020
All Drug	40	35	28	23	19	30	22	21	15	12
Opioid	42	38	29	24	19	31	23	21	15	12
Pain Relievers	52	52	42	37	35	39	32	30	24	21
Heroin	27	23	22	18	18	19	11	14	14	9
Fentanyl	28	24	19	19	15	18	12	12	12	9
Benzodiazepine	46	45	40	31	29	44	41	49	39	32
Opioid and Benzodiazepine	47	47	42	33	29	44	40	47	39	31

The table above shows the percentage of overdose decedents who filled an opioid or benzodiazepine prescription in the 60 day period before their death. Overdose deaths are further divided into categories by the drug involved in the death. For example, in 2020, 19% of all drug overdose decedents had filled an opioid prescription in the 60 days before death, a 23% decrease from 2016.

## 2020 County Level Data

The following pages include county data on the number of overdose deaths in 2020 by a subset of drug types.

*Please note that the contributing drugs are not mutually exclusive and the counts of subcategories of overdose death will not necessarily sum to total overdose deaths.*

### 2020 Overdose Death Counts by County

2020 Overdose Death Counts by County						
County	All Drug	Opioid	Pain Reliever	Heroin	Fentanyl	Stimulant
Anderson	60	41	12	8	34	31
Bedford	16	10	3	1	8	9
Benton	7	4	2	2	1	2
Bledsoe	0	0	0	0	0	0
Blount	62	37	4	3	32	24
Bradley	38	21	6	2	16	10
Campbell	20	13	7	4	7	10
Cannon	9	8	3	0	6	2
Carroll	4	2	1	0	1	2
Carter	15	12	7	1	4	3
Cheatham	41	39	7	4	37	16
Chester	2	1	0	0	1	0
Claiborne	17	6	2	1	4	8
Clay	2	1	0	0	0	1
Cocke	12	10	3	4	6	4
Coffee	17	15	6	1	11	7
Crockett	0	0	0	0	0	0
Cumberland	12	10	5	2	4	5
Davidson	438	395	80	42	367	192
Decatur	5	4	1	0	2	3
DeKalb	16	15	3	2	13	3
Dickson	33	29	6	4	25	13
Dyer	8	1	1	0	0	1
Fayette	7	7	2	0	6	2
Fentress	6	2	1	0	0	3
Franklin	11	8	2	0	7	4
Gibson	10	8	4	3	6	2
Giles	6	3	1	0	2	5
Grainger	10	6	0	1	5	4
Greene	12	11	3	1	9	5
Grundy	10	7	2	0	5	7
Hamblen	19	12	6	1	7	8
Hamilton	139	107	16	8	94	63
Hancock	3	2	2	0	0	1
Hardeman	5	2	0	1	3	3
Hardin	16	12	4	2	8	3
Hawkins	23	17	5	2	9	10
Haywood	3	3	2	0	2	1

(continued)

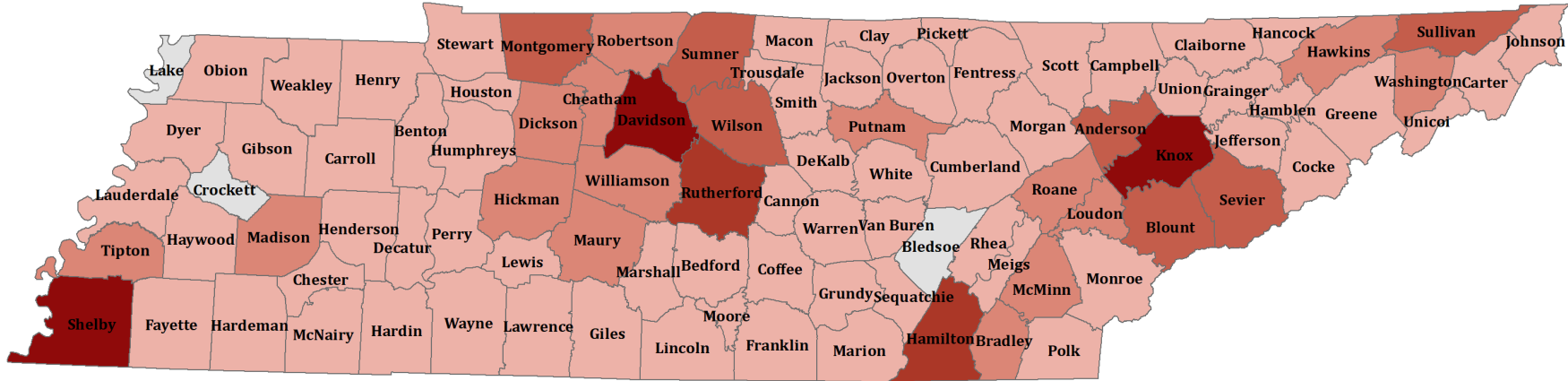
2020 Overdose Death Counts by County						
County	All Drug	Opioid	Pain Reliever	Heroin	Fentanyl	Stimulant
Henderson	5	2	1	1	2	2
Henry	14	7	2	0	5	7
Hickman	23	21	4	7	15	16
Houston	9	6	1	2	5	4
Humphreys	8	6	2	2	4	5
Jackson	6	5	2	0	3	3
Jefferson	19	6	2	2	6	7
Johnson	10	4	1	1	0	6
Knox	342	274	59	51	238	157
Lake	0	0	0	0	0	0
Lauderdale	4	3	0	1	1	3
Lawrence	14	9	2	0	8	8
Lewis	7	7	3	5	3	2
Lincoln	10	7	3	1	2	1
Loudon	23	22	8	5	15	5
McMinn	35	18	2	4	15	20
McNairy	7	5	1	0	3	0
Macon	12	7	2	0	7	4
Madison	31	23	4	6	19	15
Marion	6	3	1	1	3	3
Marshall	12	9	5	0	6	5
Maury	31	24	6	2	21	14
Meigs	5	5	1	1	5	4
Monroe	14	8	2	1	8	7
Montgomery	90	80	17	13	74	35
Moore	2	2	1	0	1	2
Morgan	5	1	0	0	1	2
Obion	2	2	1	0	1	0
Overton	4	2	1	0	0	2
Perry	2	2	0	0	2	1
Pickett	2	1	1	0	1	1
Polk	3	2	1	1	0	3
Putnam	37	28	10	5	24	18
Rhea	10	8	6	0	3	7
Roane	35	24	6	8	20	18
Robertson	43	38	10	5	33	21
Rutherford	126	109	23	18	102	50
Scott	3	2	0	0	1	1
Sequatchie	9	6	1	3	4	5
Sevier	51	39	13	4	34	20
Shelby	450	374	84	44	343	203
Smith	13	10	2	1	9	10
Stewart	8	7	2	0	8	5
Sullivan	60	45	18	6	27	24
Sumner	68	56	9	8	45	23
Tipton	23	16	5	3	13	10
Trousdale	7	7	1	2	6	2
Unicoi	7	6	5	0	2	1

(continued)

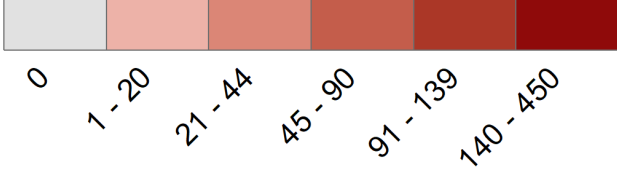
<b>2020 Overdose Death Counts by County</b>						
<b>County</b>	<b>All Drug</b>	<b>Opioid</b>	<b>Pain Reliever</b>	<b>Heroin</b>	<b>Fentanyl</b>	<b>Stimulant</b>
Union	15	8	1	3	5	5
Van Buren	1	1	1	0	0	0
Warren	14	7	6	0	4	8
Washington	44	27	12	1	17	19
Wayne	1	0	0	0	0	0
Weakley	9	6	3	2	5	2
White	15	12	7	1	6	6
Williamson	30	23	6	3	22	12
Wilson	79	72	19	7	62	31
Unknown	3	3	0	0	3	3
<b>Tennessee</b>	<b>3,032</b>	<b>2,388</b>	<b>595</b>	<b>331</b>	<b>2,014</b>	<b>1,315</b>



# Map: 2020 All Drug Overdose Deaths in TN Counties



Number of overdose deaths



## Technical Notes: TN Drug Overdose Deaths Indicator

Categories of drug overdose are identified as follows:

Category	Criteria
Primary Criteria	Only Tennessee residents Excludes voided death certificates
All Drug Overdose	Deaths that have been coded with any of the following ICD-10 codes as the underlying cause of death: X40-X44: Accidental poisoning by drugs X60-X64: Intentional self-poisoning by drugs X85: Assault by drug poisoning Y10-Y14: Drug poisoning of undetermined intent
Drug Overdose Deaths Involving Opioids	Must meet criteria for All Drug Overdose deaths AND contain at least one of the following ICD-10 codes as a contributing cause of death: T40.0: Poisoning by opium T40.1: Poisoning by heroin T40.2: Poisoning by natural and semisynthetic opioids T40.3: Poisoning by methadone T40.4: Poisoning by synthetic opioids other than methadone T40.6: Poisoning by other and unspecified narcotics
Drug Overdose Deaths Involving Opioid Pain Relievers	Must meet criteria for All Drug Overdose deaths AND contain at least one of the following ICD-10 codes as a contributing cause of death:  T40.2: Poisoning by natural and semisynthetic opioids T40.3: Poisoning by methadone
Drug Overdose Deaths Involving Heroin	Must meet criteria for All Drug Overdose deaths AND contain the following ICD-10 code as a contributing cause of death: T40.1: Poisoning by heroin
Drug Overdose Deaths Involving Fentanyl	Must meet criteria for All Drug Overdose deaths AND contain the following text in the contributing cause of death text fields: 'FENTAN', 'FENTA', 'FANTAN'
Drug Overdose Deaths Involving Any Stimulant	Must meet criteria for All Drug Overdose deaths AND contain the following ICD-10 code as a contributing cause of death: T43.6: Poisoning by psychostimulants with abuse potential or T40.5: Poisoning by cocaine



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